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ABSTRACT

The summer 1973 Title I, Elementary Secondary Education Act of 1965 project was conducted in three communities of the Silver Lake Regional School District; Halifax, Kingston, and Plympton. The program consisted of instruction in reading, mathematics, physical education, art, speech therapy, and counseling and psychological testing. The target population was children who had completed grades 1, 2, 3, 4, or 5. Children were selected for the program on the basis of educational need in reading or mathematics. The children were selected by means of achievement testing and teacher referral. Each child participated in reading or mathematics instruction or both, depending on need. All children participated in art and physical education activities. The evaluator visited the three schools in which the program was conducted, observing instruction and activities and interviewing the staff. Test results and other information were submitted to him for analysis. Progress in reading comprehension occurred at each grade level. Phonics knowledge was initially good or showed significant improvement. Third, fourth, and fifth graders made significant gains in mathematics. No gains were made on the motor screening test. Speech and counseling work evidently serves as a helpful bridge between the preceding and following school years. (Author/JM)

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Evaluation of E.S.E.A. Title I Project of the Silver Lake Regional School District

Summer 1973

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1973

The Summer 1973 Title I project was conducted in three communities of the Silver Lake Regional School District. The communities are Halifax, Kingston, and Plympton. The program consisted of instruction in reading, mathematics, physical education, art, speech therapy, and counseling and psychological testing. The target population was children who had completed grades one, two, three, four, or five. Children were selected for the program on the basis of educational need in reading or mathematics. The children were selected by means of achievement testing and teacher referral. Children who scored below the 40th percentile on reading achievement tests were eligible to participate on the basis of need in reading. Each child participated in reading or mathematics instruction or both, depending on need. All children participated in art and physical education activities. The evaluator visited the three schools in which the program was conducted, observing instruction and activities and interviewing the staff. Test results and other information were submitted to him for analysis. In this report the evaluator discusses the implementation of the program, summarizes and interprets the results of achievement testing and other data, and recommends certain changes to improve future programs.

Implementation of the Program

After selection for the program on the basis of achievement test results and teacher referral, children were given diagnostic tests of reading, phonics, mathematics, and motor performance. These tests were the pretests of the evaluation. The six-week program included field trips, instruction, and a variety of activities including art and physical education. At each school the theme introduced or developed in the field trip was related to instruction

and activities at the school. The diagnostic test results also were used as a basis for planning instruction. To the extent that instruction was individualized, individualization was facilitated by small group work and the use of learning centers in the classroom. The actual utilization of the latter approach appeared to vary from one school to another and from one classroom and time to another. In some rooms the centers were very much in evidence, in others they were not.

The program appeared to be well-attended. No severe attendance problems were reported to the evaluator or were observed by him. There were reported instances of children enrolled in the program whose family vacation plans kept them from attending part of the time. This problem existed in the summer of 1972 and occurs in summer school programs of other school systems as well.

Provision was made for keeping parents and the community informed about the program. Each school held an open-house. Typically these were well-attended. Parents were notified about field trips and other activities periodically. At the conclusion of the program, parents received a report of their child's progress. The Parent Advisory Council was active and held several meetings before and during the program.

On the basis of observations and interviews with the staff, several problems were detected, and recommendations related to these can be offered. Using the 40th percentile on standardized reading tests as the criterion for establishing eligibility for the program, many more children were eligible to attend than were enrolled. It appeared likely that the teaching staff could have worked successfully with more children than participated, without decline in the quality of the program. The school district should seek the Commonwealth's

approval to include a larger number of children by increasing somewhat the pupil-teacher ratio.

Tests for diagnostic purposes can be improved. The reading test contained a minor typographic error. Stencils for all tests should be carefully proofread. There was some dissatisfaction by the staff with the selection of the mathematics test. The best solution probably is to have the school district construct its own mathematics test that correlates closely with its curriculum at each grade level.

Mathematics instruction varied considerably from room to room. In some rooms there was an obvious need for suitable concrete materials for teaching concepts and computational procedures. Some instruction was largely verbal with children having worksheets showing numbers, problems and some pictorial illustrations. Concrete materials obtained commercially were not always available at the start of the program. But much material could have been teacher-made and prepared prior to or at the beginning of the summer program. Where games and other manipulative materials were employed, teachers were not agreed on what their purposes should be. It appeared that such materials were not always used effectively. There seemed to be a need for agreement among the staff and among the three towns to diagnose, provide effective instruction using appropriate concrete and manipulative material in conjunction with this instruction, and use materials, games, books, and worksheets to provide further practice following instruction. Some teachers evidently thought the program's philosophy was to make activities enjoyable without regard to the educational value of the activities. The evaluator considers this a misconception of the philosophy. This error could possibly

have been corrected were there greater communication among the schools. Several teachers assigned to mathematics instruction, particularly several at Kingston, could have provided some effective leadership on conducting an enjoyable yet effective instructional program facilitated by the use of concrete materials.

In both mathematics and reading there was considerable small group work. However it was not clear that there was total individualization according to need. Often each child in the group was engaged in precisely the same activity. This is entirely justified when children are sharing a common experience (e.g. cooking), but less justified when working on a set of problems. There was little individualization of instructional procedure in certain groups - all children received the same oral or written directions with the same concrete materials if these were used. There was often no attempt to individualize pupil response to each direction or question - one child would answer and the teacher would proceed to the next statement.

Toward the end of the program more concrete materials were in evidence and there was a greater tendency to individualize. It would be hoped that the appropriate use of materials and the procedures for individualizing instruction will be established at the start of a future program. Teachers should be prepared for this by attending training sessions prior to starting the summer program.

The physical education program was carried out by aides under the direction of a physical education specialist. The specialist trained the aides, provided them with information about the seventy-five activities to be used in the program and demonstrated several of these, instructed the aides about health and safety precautions, and supervised the ongoing program. The aides taught the activities

and lessons, administered both pre- and posttests of motor fitness, kept written records of test results, daily activities, and comments about the children, and supervised the children during recess periods. The program is to be followed up in the fall by recommending additional work for children who scored especially low on the motor fitness test.

The art program was developed aroung the idea of "scrap" art. The materials used included egg cartons, bottles, buttons, scraps of cloth, etc. The program was conducted by an art supervisor and aides. Children were given a choice of projects from which to choose and freedom to select from the available scrap materials. The staff attempted to identify any child's problem skills and were encouraged to work on these skills in the course of the six-week program. Aides maintained records of pupils' achievement in the art activities. Pupils were evaluated as to whether they completed their work successfully, failed to complete the work successfully, or did not attempt the project at all.

The speech therapist worked twice weekly in half hour sessions with children having speech problems. Children were seen individually or in groups of two. Reports were written on each child and copies sent to the parents, placed in the child's permanent record folder, and in the speech folders. Screening was done when children were referred for speech problems. A record of these results was transmitted to the speech therapist during the school year.

Psychological testing and counseling was provided by a specialist. On the basis of referrals made through the director at each school, the Wechsler Intelligence Scale for Children was administered, scored, and evaluated. Results were given to the directors for inclusion in

the pupils' cumulative record folders. Evaluations included recommendations for certain types of teaching and learning activities. Recommendations were made for further screening and testing during the school year. Counseling sessions were also provided children who had difficulty adjusting to school during the year or during the summer. Information on these children was transmitted so that they would receive adjustment services during the forthcoming school year.

Testing

Achievement testing was used both for purposes of diagnosis and program evaluation in the areas of reading, mathematics, and physical education. Evaluation of the art program was accomplished by means of checklists of children's performance on art projects. The speech therapist and the counselor maintained records on numbers of children serviced. No attempt was made to quantify children's progress resulting from speech therapy or counseling in a program of thislimited duration.

Reading tests consisted of evaluator-constructed instruments. A test of reading comprehension was prepared for children who completed first and second grades. This test employed a first-second grade vocabulary and is designated the Primary Level test. Another test using a third-fourth grade vocabulary was used for children who had completed third, fourth, and fifth grades. This is designated the Intermediate Level test. The tests were modifications of tests used in the Summer 1972 Title I program. Each test yielded raw scores in five areas: main idea, stated detail, inference, sequence, and total test.

A test of phonics knowledge was used. This test yielded raw scores in five areas: single consonants, consonant blends, consonant digraphs, vowels, and total test.

A set of published non-standardized arithmetic tests was employed. The tests were at each of the five grade levels of the children in the program. Items were selected from the total test and directions modified prior to the posttest. Raw scores on pretests were recomputed for purposes of pre-post comparisons such that both administrations reflected the same items.

The motor fitness test created by the physical education specialist was employed. It consists of five items of simple motor tasks, each rated on a five point scale. The test is similar to that used in the Summer 1972 evaluation, but one item was made easier with the result that total scores, both pre- and post-, would be increased.

Analysis of Data

In all cases that pre- and posttest scores were obtained, t tests for correlated observations were applied to the data. Significance was set at the .05 level using a two-tailed test. This permits the identification of significant gains and losses in average performance. Gain or loss that could occur by chance less often than one time in twenty (<.05 level) was accepted as significant. Results of each analysis are presented on tables. The level of significance of a gain or loss is shown at <.05, <.01, <.001 levels. If the difference is not significant it is noted with NS. In addition, each table shows number of children (N), and the mean and standard deviation of each pre- and posttest score.

Data are analyzed by grade within each school, and with schools combined by grade. Scores represent number of items correct, or

total ratings on the motor fitness test (the higher score corresponding to the better rating). It often happens that gain is short of significant when schools are analyzed separately, but are significant when results are combined. One reason is that the significance test is sensitive to numbers of cases. If groups are very small, or if pretest performance is very good, gain measures may fall short of significance. Analysis of data produced no significant loss on any score in any area.

Reading Achievement

Reading comprehension results are shown in Tables 1 and 2. The five scores correspond to: 1) main idea, 2) stated detail, 3) inference, 4) sequence, and 5) total test.

As shown in Table 1, there was some evidence of gain in reading comprehension at each grade level. This result was most obvious in grade one and appeared to decrease in each subsequent grade. The total reading score showed significant gain in grades one to four.

Table 2 shows the results at each school. At Halifax, only grade 5 failed to show significant gain in comprehension on any subtest. The most noticeable gains at Halifax were obtained in grade 4. Only the score on inference failed to show significant gain at any grade level.

At Kingston the most obvious gains were made by first graders. There was some evidence of gain in comprehension at each grade level. First and fifth graders showed some evidence of significant progress in comprehension at Plympton. It should be noted that very few children were in each grade beyond first grade.

Tables 3 and 4 present the results of phonics testing. The five scores correspond to: 1) single consonants (18 items), 2) consonant

TABLE 1

COMPARISON OF PRETEST AND POSTTEST MEANS IN READING
SCHOOLS COMBINED BY GRADE

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Grade 1, Primary Test, N = 37			
1	2.35	1.80	4.46	1.82	<.001
2	6.43	3.93	9.35	4.03	<.001
3	2.41	2.01	4.16	2.24	<.001
4	2.46	1.89	3.86	1.83	<.01
5	13.65	7.96	21.84	8.44	<.001
		Grade 2, Primary Test, N = 30			
1	4.73	2.07	5.53	1.78	<.05
2	10.63	3.84	12.40	3.23	<.01
3	4.87	1.93	5.60	1.83	<.05
4	3.77	1.92	4.23	1.68	NS
5	24.00	7.45	27.77	6.99	<.01
		Grade 3, Intermediate Test, N = 18			
1	6.39	2.09	6.72	2.14	NS
2	14.17	2.96	15.39	3.24	<.05
3	6.61	1.46	6.39	1.75	NS
4	3.33	1.72	4.56	1.54	<.01
5	30.50	6.15	33.06	7.19	<.01
		Grade 4, Intermediate Test, N = 22			
1	6.18	2.06	7.00	1.45	<.05
2	14.59	3.36	15.68	4.08	NS
3	6.00	2.14	6.50	1.99	NS
4	4.09	1.48	4.14	1.58	NS
5	30.86	7.12	33.32	7.56	<.05
		Grade 5, Intermediate Test, N = 28			
1	8.25	2.08	8.25	1.29	NS
2	17.50	2.32	18.46	2.52	<.01
3	7.46	1.77	7.79	1.57	NS
4	5.11	1.31	5.32	1.39	NS
5	38.32	5.31	39.82	5.19	NS

TABLE 2

COMPARISON OF PRETEST AND POSTTEST MEANS IN READING BY SCHOOL AND GRADE

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Halifax			
		Grade 1, Primary Test, N = 7			
1	.86	1.07	4.00	2.52	<.05
2	3.29	2.50	6.43	4.76	NS
3	1.00	1.15	2.43	2.37	NS
4	1.00	1.41	2.86	2.04	NS
5	6.14	4.74	15.71	10.40	NS
		Grade 2, Primary Test, N = 13			
1	4.00	1.91	5.62	2.02	<.05
2	8.92	3.55	11.54	3.84	<.05
3	3.92	2.02	5.00	2.35	NS
4	3.15	1.91	4.15	1.68	NS
5	20.00	6.60	26.31	8.36	<.05
		Grade 3, Intermediate Test, N = 8			
1	6.75	1.67	7.13	1.81	NS
2	15.13	2.53	16.25	2.43	NS
3	7.00	1.20	6.63	1.60	NS
4	3.13	1.64	4.88	1.55	<.05
5	32.00	5.26	34.88	5.62	NS
		Grade 4, Intermediate Test, N = 6			
1	6.50	1.05	7.83	1.17	<.05
2	16.33	1.97	18.83	2.04	<.05
3	6.67	.82	7.00	.89	NS
4	4.33	1.63	5.50	.84	<.05
5	33.83	4.26	39.17	3.25	<.01
		Grade 5, Intermediate Test, N - 11			
1	7.55	2.38	8.00	1.41	NS
2	16.91	2.34	17.91	3.05	NS
3	6.64	1.50	6.73	1.42	NS
4	4.82	1.78	5.27	1.62	NS
5	35.91	5.32	37.91	5.28	NS

TABLE 2 (Cont.)

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Kingston			
		Grade 1, Primary Test, N = 19			
1	2.00	1.56	4.11	1.59	<.001
2	5.58	3.29	8.58	3.17	<.001
3	2.00	1.94	4.16	1.92	<.001
4	2.21	1.47	3.53	1.74	<.05
5	11.79	5.81	20.37	6.44	<.001
		Grade 2, Primary Test, N = 14			
1	5.29	2.13	5.21	1.67	NS
2	11.36	3.69	12.79	2.75	<.05
3	5.43	1.65	6.07	1.27	NS
4	4.29	2.02	3.86	1.51	NS
5	26.36	7.00	27.93	5.77	NS
		Grade 3, Intermediate Test, N = 5			
1	7.00	1.58	6.20	2.59	NS
2	14.20	3.56	16.60	1.9[illegible]	NS
3	6.40	1.67	7.00	1.58	NS
4	4.20	1.30	4.60	1.67	NS
5	31.80	5.40	34.40	6.39	<.05
		Grade 4, Intermediate Test, N = 12			
1	5.83	2.37	6.83	1.64	<.05
2	13.58	3.96	14.25	4.49	NS
3	6.33	2.53	6.08	2.35	NS
4	3.92	1.44	3.17	1.27	NS
5	29.67	8.97	30.33	8.17	NS
		Grade 5, Intermediate Test, N = 15			
1	8.87	1.77	8.40	1.30	NS
2	18.07	2.37	18.87	2.26	<.05
3	8.00	1.85	8.47	1.25	NS
4	5.27	.96	5.13	1.13	NS
5	40.20	4.97	40.87	5.01	NS

TABLE 2 (Cont.)

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Plympton			
		Grade 1, Primary Test, N = 11			
1	3.91	1.45	5.36	1.50	<.05
2	9.91	3.30	12.55	2.91	<.01
3	4.00	1.55	5.27	2.15	NS
4	3.82	2.04	5.09	1.22	NS
5	21.64	6.14	28.27	6.39	<.01
		Grade 2, Primary Test, N = 3			
1	5.33	2.08	6.67	.58	NS
2	14.67	1.53	14.33	1.53	NS
3	6.33	.58	6.00	1.00	NS
4	4.00	1.00	6.33	1.15	NS
5	30.33	4.73	33.33	3.51	NS
		Grade 3, Intermediate Test, N = 5			
1	5.20	2.95	6.60	2.51	NS
2	12.60	2.88	12.80	4.32	NS
3	6.20	1.79	5.40	2.07	NS
4	2.80	2.17	4.00	1.58	NS
5	26.80	7.69	28.80	9.60	NS
		Grade 4, Intermediate Test, N = 4			
1	6.75	2.50	6.25	.50	NS
2	15.00	2.16	15.25	2.63	NS
3	4.00	.82	7.00	2.16	NS
4	4.25	1.71	5.00	1.41	NS
5	30.00	2.31	33.50	5.80	NS
		Grade 5, Intermediate Test, N = 2			
1	7.50	2.12	8.50	.71	NS
2	16.50	.71	18.50	.71	<.001
3	8.00	1.41	8.50	2.12	NS
4	5.50	.71	7.00	1.41	NS
5	37.50	3.54	42.50	4.95	NS

blends (19 items), 3) consonant digraphs (5 items), 4) vowels (10 items), and 5) total test (52 items). Table 3 shows that significant gains were made by first, second and fourth graders. It should be noted that third and fifth graders got near-perfect pretest scores (fewer than three out of 52 incorrect on the average) leaving little room for growth. First graders did not progress appreciably on knowledge of consonant digraphs, but this is more sophisticated knowledge than what is typically taught at that level. Beyond this grade, children knew rather well the elements on which they were tested whether significant gains were or were not obtained. In general, either progress was made or performance in phonics knowledge was excellent. This conclusion is confirmed by examining the separate results at each school (Table 4).

In summary, there was some evidence of gain in comprehension at each school, virtually at every grade level. Results in phonics were uniformly good. Children appear to have acquired certain needed word analysis skill and, especially in lower grades, some of the necessary skills in comprehending main idea, stated details, inference, and sequence. Only the results obtained at one school on reading for inference may have been less than satisfactory.

Mathematics Achievement

Significant gains in mathematics were obtained in grades 3, 4 and 5 where schools were combined by grade (Table 5). In addition second graders at Kingston made significant progress as did first graders at Plympton (Table 6). Failure of certain groups at each school to show significant progress was likely due to the small number of children. Only second graders at Halifax and first graders at Kingston formed fairly large groups and yet failed to show

TABLE 3

COMPARISON OF PRETEST AND POSTTEST MEANS IN PHONICS, SCHOOLS COMBINED BY GRADE

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Grade 1, N = 35			
1	13.57	4.11	15.86	2.88	<.001
2	9.69	6.69	13.83	4.97	<.001
3	.74	1.20	1.09	1.38	NS
4	4.94	3.25	7.06	2.51	<.001
5	28.94	13.00	37.83	10.01	<.001
		Grade 2, N = 28			
1	17.07	1.15	17.11	1.40	NS
2	16.93	2.99	17.93	1.74	NS
3	1.86	1.43	2.64	1.89	<.05
4	8.46	1.95	9.32	1.02	<.05
5	44.32	6.19	47.00	3.72	<.01
		Grade 3, N = 18			
1	17.67	.49	17.83	.51	NS
2	18.28	1.27	18.56	.86	NS
3	3.89	1.02	4.06	1.70	NS
4	9.67	.69	9.67	.77	NS
5	49.50	2.04	50.11	2.63	NS
		Grade 4, N = 22			
1	16.91	1.11	17.45	.74	<.05
2	18.05	1.29	18.09	1.41	NS
3	3.73	1.45	4.36	1.05	NS
4	8.64	2.42	9.50	1.14	NS
5	47.32	4.57	49.41	3.29	<.05
		Grade 5, N = 27			
1	17.78	.42	17.93	.27	NS
2	18.15	1.61	18.19	1.71	NS
3	4.41	.75	4.41	.75	NS
4	9.63	.88	9.85	.46	NS
5	49.96	2.44	50.37	2.66	NS

TABLE 4

COMPARISON OF PRETEST AND POSTTEST MEANS IN PHONICS BY SCHOOL AND GRADE

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Halifax			
		Grade 1, N = 5			
1	15.60	2.30	16.60	1.14	NS
2	11.60	7.99	12.40	8.26	NS
3	1.20	.84	.80	.84	NS
4	6.00	4.06	4.60	4.45	NS
5	34.40	13.98	34.40	14.12	NS
		Grade 2, N = 11			
1	17.36	.67	17.55	.52	NS
2	18.00	2.10	18.73	.47	NS
3	2.36	1.12	3.09	2.02	NS
4	9.09	1.45	9.00	1.41	NS
5	46.82	3.95	48.36	2.98	<.05
		Grade 3, N = 8			
1	17.63	.52	17.63	.74	NS
2	18.75	.46	18.75	.46	NS
3	3.63	1.06	3.63	1.85	NS
4	9.75	.71	9.88	.35	NS
5	49.75	1.28	49.88	2.17	NS
		Grade 4, N = 6			
1	16.83	.75	17.67	.52	<.05
2	17.67	1.21	18.00	.63	NS
3	4.17	.75	3.83	.75	NS
4	9.33	1.21	9.33	.82	NS
5	48.00	1.26	48.83	1.17	NS
		Grade 5, N = 11			
1	17.91	.30	18.00	.00	NS
2	18.36	1.80	18.36	1.21	NS
3	4.64	.50	4.64	.50	NS
4	9.27	1.27	9.91	.30	NS
5	50.18	2.79	50.91	1.45	NS

TABLE 4 (Cont.)

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Kingston			
		Grade 1, N = 19			
1	14.21	2.92	16.37	1.95	<.001
2	9.95	6.64	15.21	3.60	<.001
3	.26	.65	.47	.61	NS
4	4.42	3.02	7.58	1.54	<.001
5	28.84	10.86	39.63	6.95	<.001
		Grade 2, N = 14			
1	16.71	1.44	16.64	1.82	NS
2	15.93	3.60	17.36	2.21	NS
3	1.29	1.54	2.21	1.93	NS
4	7.64	2.17	9.64	.50	<.01
5	41.57	7.14	45.86	4.31	<.05
		Grade 3, N = 5			
1	17.60	.55	18.00	0.00	NS
2	17.40	2.07	18.20	1.30	NS
3	4.20	.84	5.00	0.00	NS
4	9.80	.45	9.80	.45	NS
5	49.00	2.74	51.00	1.22	NS
		Grade 4, N = 12			
1	16.67	1.30	17.25	.87	NS
2	18.00	1.48	17.83	1.80	NS
3	3.25	1.76	4.42	1.24	<.05
4	7.83	2.98	9.42	1.44	NS
5	45.75	5.55	48.92	4.19	<.05
		Grade 5, N = 14			
1	17.64	.50	17.86	.36	NS
2	17.93	1.59	17.93	2.13	NS
3	4.14	.86	4.14	.86	NS
4	9.86	.36	9.79	.58	NS
5	49.57	2.31	49.71	3.38	NS

TABLE 4 (Cont.)

Score	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
		Plympton			
		Grade 1, N = 11			
1	11.55	5.72	14.64	4.30	<.05
2	8.36	6.58	12.09	5.05	<.01
3	1.36	1.69	2.27	1.79	NS
4	5.36	3.41	7.27	2.37	<.05
5	26.64	16.24	36.27	12.62	<.01
		Grade 2, N = 3			
1	17.67	.58	17.67	.58	NS
2	17.67	.58	17.67	1.53	NS
3	2.67	1.15	3.00	1.00	NS
4	10.00	0.00	9.00	1.00	NS
5	48.00	0.00	47.33	1.53	NS
		Grade 3, N = 5			
1	17.80	.45	18.00	0.00	NS
2	18.40	.89	18.60	.89	NS
3	4.00	1.22	3.80	2.17	NS
4	9.40	.89	9.20	1.30	NS
5	49.60	2.61	49.60	4.28	NS
		Grade 4, N = 4			
1	17.75	.50	17.75	.50	NS
2	18.75	.50	19.00	0.00	NS
3	4.50	.58	5.00	0.00	NS
4	10.00	0.00	10.00	0.00	NS
5	51.00	1.41	51.75	.50	NS
		Grade 5, N = 2			
1	18.00	0.00	18.00	0.00	NS
2	18.50	.71	19.00	0.00	NS
3	5.00	0.00	5.00	0.00	NS
4	10.00	0.00	10.00	0.00	NS
5	51.50	.71	52.00	0.00	NS

significant gain. On the basis of this testing it appears that some improvement of instruction for first and second graders may be desirable. However, it is uncertain whether these results would be obtained were a different arithmetic test used.

TABLE 5

COMPARISON OF PRETEST AND POSTTEST MEANS IN MATHEMATICS, SCHOOLS COMBINED BY GRADE

Grade	N	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
1	36	26.53	4.97	27.81	5.17	NS
2	27	38.74	6.73	40.41	7.70	NS
3	13	31.46	7.58	41.62	7.35	<.001
4	21	16.29	5.37	26.71	10.40	<.001
5	27	16.74	8.08	23.52	9.48	<.001

TABLE 6

COMPARISON OF PRETEST AND POSTTEST MEANS IN MATHEMATICS, BY SCHOOL AND GRADE

Grade	N	Pretest Mean	SD	Posttest Mean	SD	Level of Signif. of Difference
			Halifax			
1	6	32.33	2.80	32.17	2.04	NS
2	12	38.58	8.54	37.50	9.10	NS
3	3	30.33	4.04	32.67	1.53	NS
4	6	14.83	5.71	14.67	5.61	NS
5	11	11.82	8.98	17.09	5.45	<.01
			Kingston			
1	19	26.26	3.62	26.74	4.89	NS
2	13	38.15	5.16	42.00	5.73	<.01
3	5	27.00	5.83	40.20	6.10	<.01
4	11	15.73	5.08	28.82	6.93	<.001
5	14	20.43	5.72	25.57	7.01	<.001
			Plympton			
1	11	23.82	5.51	27.27	5.88	<.05
2	2	43.50	2.12	47.50	.71	NS
3	5	36.60	8.44	48.40	1.95	<.05
4	4	20.00	5.29	39.00	.82	<.01
5	2	18.00	2.83	44.50	2.12	NS

Physical Education Results

The motor screening test used in 1973 was a modified version of one used in 1972. One item was made easier and higher scores on that item were typically obtained. Possibly for this reason mean total scores obtained in 1973 were generally higher than those obtained in 1972. Also, the instrument is intended as a screening test. Therefore most children would perform well, and only those few who do poorly would be of interest to the physical education specialist for further work.

Consequently, mean pretest scores were generally high, at each grade within five points of the possible score of 25. The magnitude of change was slight, suggesting either that the program had no effect or that the skills measured, which were rated well on the pretest, would be unaffected by the instructional program followed. The result was that no significant gains were obtained (Tables 7 and 8).

The evaluator believes the instrument was insensitive to changes in ability given the initial level of ability. Although it may have been a suitable screening instrument for children who could profit from remedial help, a more appropriate instrument for measuring progress on the skills taught in the physical education program will be needed in the future.

TABLE 7

COMPARISON OF PRETEST AND POSTTEST MEANS ON PHYSICAL EDUCATION MOTOR SCREENING TEST SCHOOLS COMBINED BY GRADE

Grade	N	Pretest (Total Score) Mean	SD	Posttest (Total Score) Mean	SD	Level of Signif. of Difference
1	32	21.44	2.34	21.94	2.09	NS
2	23	22.17	2.08	22.57	2.76	NS
3	20	22.80	2.19	23.30	1.75	NS
4	17	24.24	1.25	24.35	.79	NS
5	23	23.43	1.24	23.91	1.20	NS

TABLE 8

COMPARISON OF PRETEST AND POSTTEST MEANS ON PHYSICAL EDUCATION MOTOR SCREENING TEST BY SCHOOL AND GRADE

Grade	N	Pretest (Total Score) Mean	SD	Posttest (Total Score) Mean	SD	Level of Signif. of Difference
			Halifax			
1	8	21.25	2.49	21.13	2.42	NS
2	10	21.90	2.28	21.60	3.66	NS
3	11	22.36	2.46	22.73	2.00	NS
4	6	24.83	.41	24.33	.52	NS
5	11	23.45	.82	24.18	.98	NS
			Kingston			
1	12	20.58	2.64	21.92	2.11	NS
2	9	21.78	1.99	23.11	1.76	NS
3	5	23.20	2.05	23.80	1.30	NS
4	7	23.57	1.62	24.14	1.07	NS
5	10	23.30	1.70	23.50	1.43	NS
			Plympton			
1	12	22.42	1.62	22.50	1.83	NS
2	4	23.75	1.26	23.75	1.26	NS
3	4	23.50	1.73	24.25	.96	NS
4	4	24.50	1.00	24.75	.50	NS
5	2	24.00	0.00	24.50	.71	NS

Art Results

An estimate of the achievement of children in the art program is obtained by tallying satisfactory and unsatisfactory ratings on art projects. It could not be determined which sets of skills were indicated by satisfactory completion of projects. Furthermore, projects differed from one group to another. Therefore analysis is presented by group and no attempt is made to give a project-by-project breakdown.

The analysis examines two dimensions: 1) success of children, 2) adequacy of projects. A child should be able to complete satisfactorily a number of projects in six weeks. If the program is

successful he should fail to perform adequately on a relatively small proportion of the projects he attempts. Each project used in the program should be capable of being completed satisfactorily by a substantial proportion of the children that attempt it. Hence, the analysis examines the range of the number of projects satisfactorily completed by children in a group; the largest number of unsatisfactory ratings obtained by a child and the largest proportion of unsatisfactory ratings to total number of projects attempted obtained by a child in each group; and the least proportion of children able to complete projects satisfactorily, and identifies those projects judged too difficult for the children on this basis.

At Halifax, children were rated in two groups, designated primary and intermediate, each having worked on different sets of activities. The primary group consisted of sixteen children. These children completed from four to eleven projects successfully. No child was rated unsatisfactory on more than three projects; each child was rated satisfactory on 67% or more of the projects he attempted. Each project was satisfactorily completed by 69% or more of the children who attempted it. With the exception of one or two children, each child's rate of success may be considered quite high.

The intermediate group at Halifax school consisted of thirteen children. The children satisfactorily completed from four to eleven projects. No child was rated unsatisfactory on more than four projects; each child was rated satisfactory on 50% or more of the projects he attempted. There appears to be a low rate of success for at least two children in the group. Each project was satisfactorily completed by 10% or more of the children who attempted it. Four projects were satisfactorily completed by less than 54% of the children who attemp-

ted them and should be modified or dropped. These were "macaroni mosaics," "yarn designs," "sea shells sculptures," and "free form art."

At Kingston, children were rated in three groups on somewhat different projects from group to group. Groups crossed grade level lines. For this analysis one group that ranged from grades one through five are divided into primary (grades 1-3) and intermediate (grades 4-5) groups. Projects differed somewhat between the sub-groups. Summarized below, therefore, are data on four groups in all, two primary and two intermediate.

One primary group consisted of 18 children. These children satisfactorily completed from six to fourteen projects. No child was rated unsatisfactory on more than two projects; each child was rated satisfactory on 82% or more of the projects he attempted. Each project was satisfactorily completed by 83% of those children who attempted it.

The second primary group consisted of 22 children. These children completed from eleven to seventeen projects successfully. No child was rated unsatisfactory on more than five projects; each child was rated satisfactory on 69% or more of the projects he attempted. Each project was satisfactorily completed by 71% of the children who attempted it. It is probable that the "wall hanging" project done by this group in conjunction with the natural resources theme was too difficult and should be replaced at this level.

One intermediate group consisted of twelve children. These children completed from six to thirteen projects satisfactorily. No child was rated unsatisfactory on more than two projects; each child was rated satisfactory on 80% or more of the projects he attempted. Each project was satisfactorily completed by 80% or more of the children who attempted it.

The second intermediate group consisted of fifteen children. These children completed from nine to fourteen projects successfully. No child was rated unsatisfactory on more than one project; each child was rated satisfactory on 90% or more of the projects he attempted. Each project except one was satisfactorily completed by 100% of the children who attempted it. The exception was "thumb print picture" which no child completed satisfactorily. This project should probably not be used in the future.

Data from Plympton werenot collected in such a way as to permit accurate tallies by project. Thirty-six children in grades 1-3 satisfactorily completed from six to nineteen projects. No children were rated unsatisfactory on more than five projects; each child was rated satisfactory on 69% or more of the projects he attempted. This appears to be a satisfactory success rate. Although precise tallies by project could not be made, it was determined that no more than 67% of the children received satisfactory ratings in "three-dimensional paper collage," no more than 52% received satisfactory ratings in "torn paper pictures," no more than 58% received satisfactory ratings in "cloth collage." Use of these activities with primary level children should be reconsidered.

Seventeen children in grades four and five satisfactorily completed from seven to sixteen projects. No children were rated unsatisfactory on more than six projects; each child was rated satisfactory on 50% or more of the projects he attempted. A low rate of success applied to only two or three children. It was determined that no more than 47% of the children received satisfactory ratings in "mosaics," no more than 53% in "styrofoam mobile," and no more than 59% in "kitchen collage." Use of these activities should be reconsidered.

Results of the Speech Therapy Program

A total of fifteen children with speech problems were treated during the summer. These included problems of articulation, voice, delayed speech and language, and one child with cleft palate. Reports were transmitted to parents and schools. Since the program was short term, but a part of a continuing program of therapy during the school year, no assessment of degree of progress by each child was attempted for this evaluation.

It is evident that the Title I program in speech therapy offered children the opportunity to receive a continuation of the therapy they would normally receive during the preceding and following school years. This would help prevent regression during the summer. The therapy provided during the summer was intense and individualized. Screening of new children accomplished during the summer makes it possible to initiate therapy early in the fall. All of these facts justify the inclusion of speech therapy in the Summer Title I program.

Results of the Counseling and Psychological Testing Program

The specialist administered, scored and evaluated performance on the Wechsler Intelligence Scale for Children by thirty-one children. In addition he held twenty-eight counseling sessions with children who had adjustment problems. No assessment of progress in academic areas or adjustment, attributable to this service, could be made in this short-term summer program. However, the facts that potentially useful information and specific recommendations concerning the children have been transmitted to school authorities, and that such information and recommendations can contribute to the children's academic progress and to their adjustment, are reasons attesting to the worth of a testing and counseling component to the Summer Title I program.

Teacher Opinion

Teachers were asked to comment on several aspects of the program. The evaluator consolidates and summarizes their responses below, in some cases comments on the responses, and indicates possibilities for improving the program.

Asked to comment about the adequacy and availability of teaching materials, responses ranged from passable to excellent. Suggestions included making materials available for familiarization by the teachers before using them. One teacher found the reading matter was limited. One found materials were overly familiar to the children. In general, materials evidently were available to most teachers early in the program.

Teachers believed for the most part that children who could benefit from the program participated in it. These included children who require individual attention and social development. Some teachers expressed the view that the program was inappropriate for some children. Opinions on this were somewhat contradictory. Among the "kinds" of children for whom the program was inappropriate according to at least one teacher were slow learners, discipline problems, children who were already doing quite well in school, children enrolled for "babysitting" purposes. One teacher stated that children with behavior problems should be selected to participate.

Views concerning the helpfulness of the evaluation tests for diagnostic purposes varied. The mathematics tests were often criticized. Suggestions for improvement of tests include making them shorter, more appropriate to level and skill development, and having the mathematics tests constructed by teachers at each grade level to assure correlation with the curriculum.

Asked how good the attendance of children was, responses varied from excellent to poor at one school and uniformly good at another. Many teachers believe good attendance is essential for program effectiveness. The problem created by family vacation plans was cited. Suggestions included making families commit themselves to continuous attendance and dropping children for non-attendance.

Asked how well teachers were informed about how the program was to be conducted, teachers' responses ranged from poorly-informed to well-informed. Some felt there was insufficient information as to pupil needs and program goals. Evidently more could be done during the workshops preceding the summer program.

Asked about the adequacy of direction and supervision, responses were generally that they were adequate at the school level. There may be a need for improving direction from the central office and communication among the schools.

Communication between teachers and specialists was found to be good at Kingston and Plympton but poor at Halifax. Some special programs are relatively independent of the reading and mathematics programs (e.g. physical education). Perhaps more could be done about improving coordination with the art program and communication with the guidance and speech personnel. Communication among the teachers within each school was uniformly good.

Scheduling was found to be satisfactory although two teachers believed they needed more time for reading and mathematics.

A useful by-product of summer programs is that teachers explore new material and techniques which then can be carried into year-round teaching. Among the aspects found helpful and having potential for carry-over to year round teaching, teachers cited individualization, informal teaching, the use of learning centers, awareness of commercially-prepared materials, development of teacher-made materials, teaching

techniques, and the theme approach.

Summary and Conclusions

The Summer 1973 Title I program was conducted in Halifax, Kingston, and Plympton and offered instruction in mathematics, reading, physical education, and art to children in grades one to five. Supplementary service was offered in speech therapy and counseling and testing.

Test results showed evidence of progress in reading comprehension at each grade level. Phonics knowledge of children either was initially good or showed significant improvement in the course of the program. Third, fourth and fifth graders made significant gains in mathematics. On the basis of the testing, efforts may be needed to improve the mathematics program of first and second graders. There were no gains shown on the motor screening test as modified for use in the 1973 program. Apparently the test is insensitive to progress that might be made by an unselected group of children.

Tallies of successful completion of art projects permitted evaluation of success by children in the program and appropriateness of art projects. Most children, but not all, appear to enjoy a high rate of success. Certain projects appear to be inappropriate.

Speech therapy was offered to fifteen children. The program serves as a helpful bridge between speech therapy offered the preceding and following academic years. The counseling specialist tested thirty-one child ren with the Wechsler Intelligence Scale for Children and offered counseling sessions. Potentially useful information from these services was transmitted to school authorities.

Recommendations

1. A mathematics test at each grade level should be constructed by teachers of the participating communities for any future program. Each test should be brief and have high curricular validity.

2. Reading tests of comprehension and word analysis skills should be shortened, and items of more appropriate levels of difficulty and skill development should be included.

3. The motor screening test, which may be helpful for screening purposes and for selection of children with extreme motor deficits, should be replaced by a more appropriate instrument for evaluating the effectiveness of a physical education program designed for an unselected population.

4. Skills objectives in art should be identified and become the basis of a rating scale or checklist for initial and final testing.

5. Communication among the several schools should be improved to foster understanding of program objectives and effective instructional procedures.

6. A workshop preceding the summer program should stress the appropriate use of materials and procedures for teaching mathematics and reading, and should orient the staff with respect to procedures for individualizing instruction, using the theme, and coordinating the academic studies with art projects.